

FIGURE 1 – Prior Art

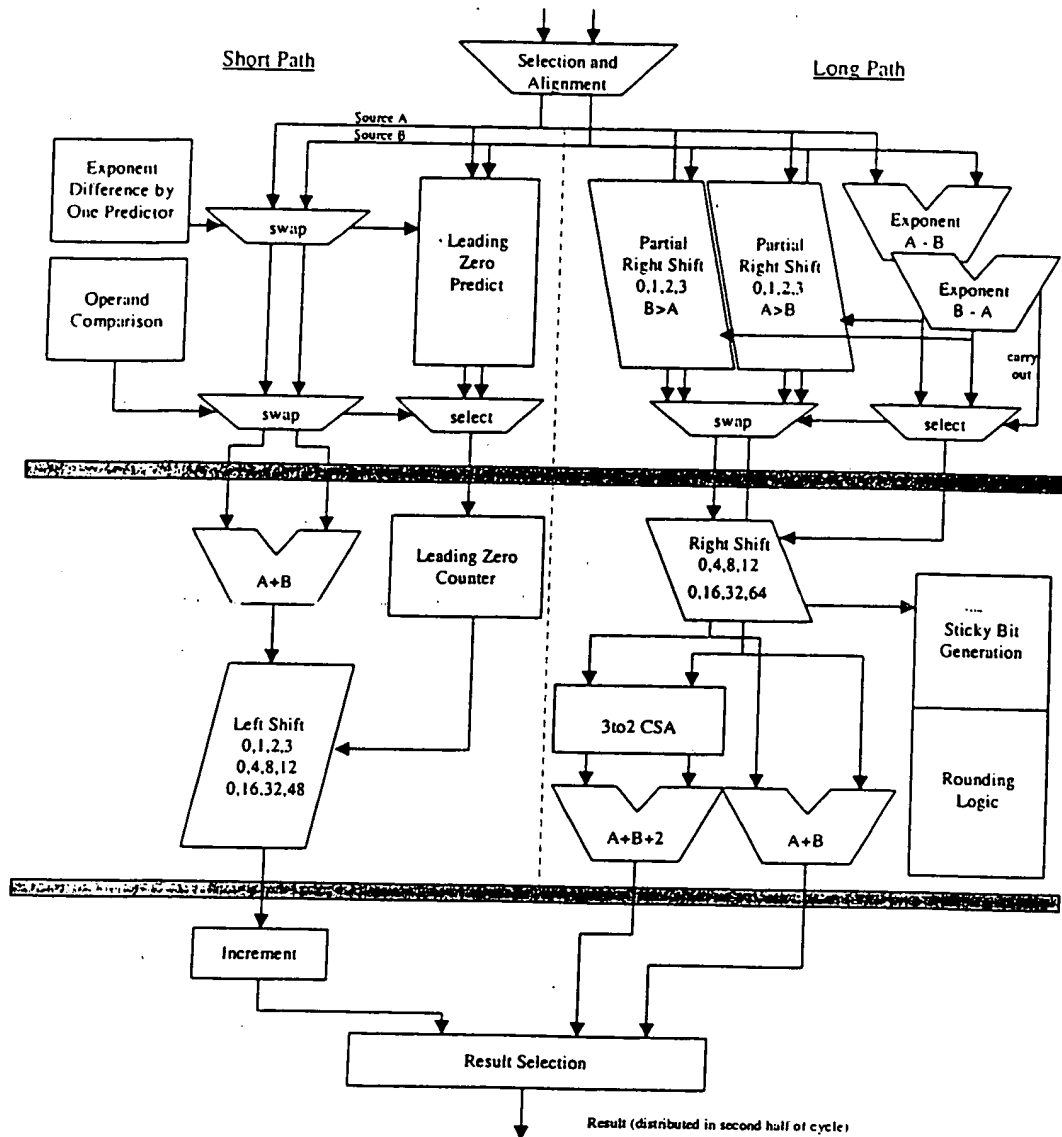


FIGURE 2

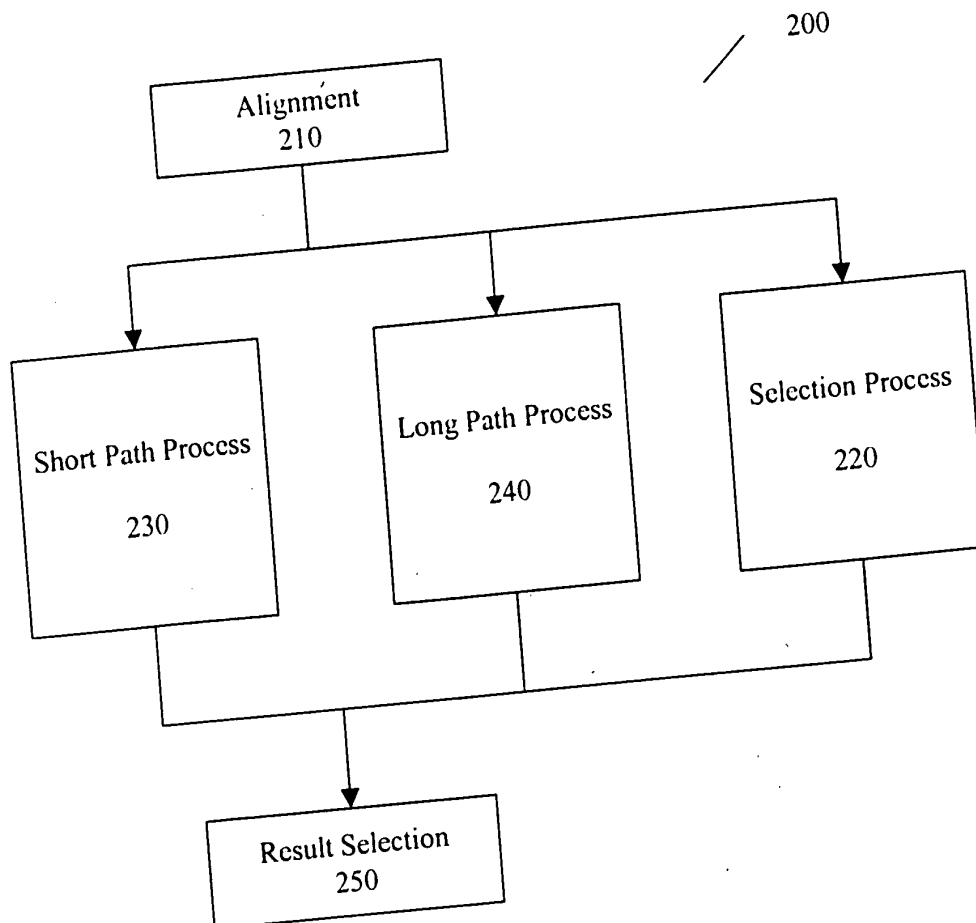


FIGURE 3

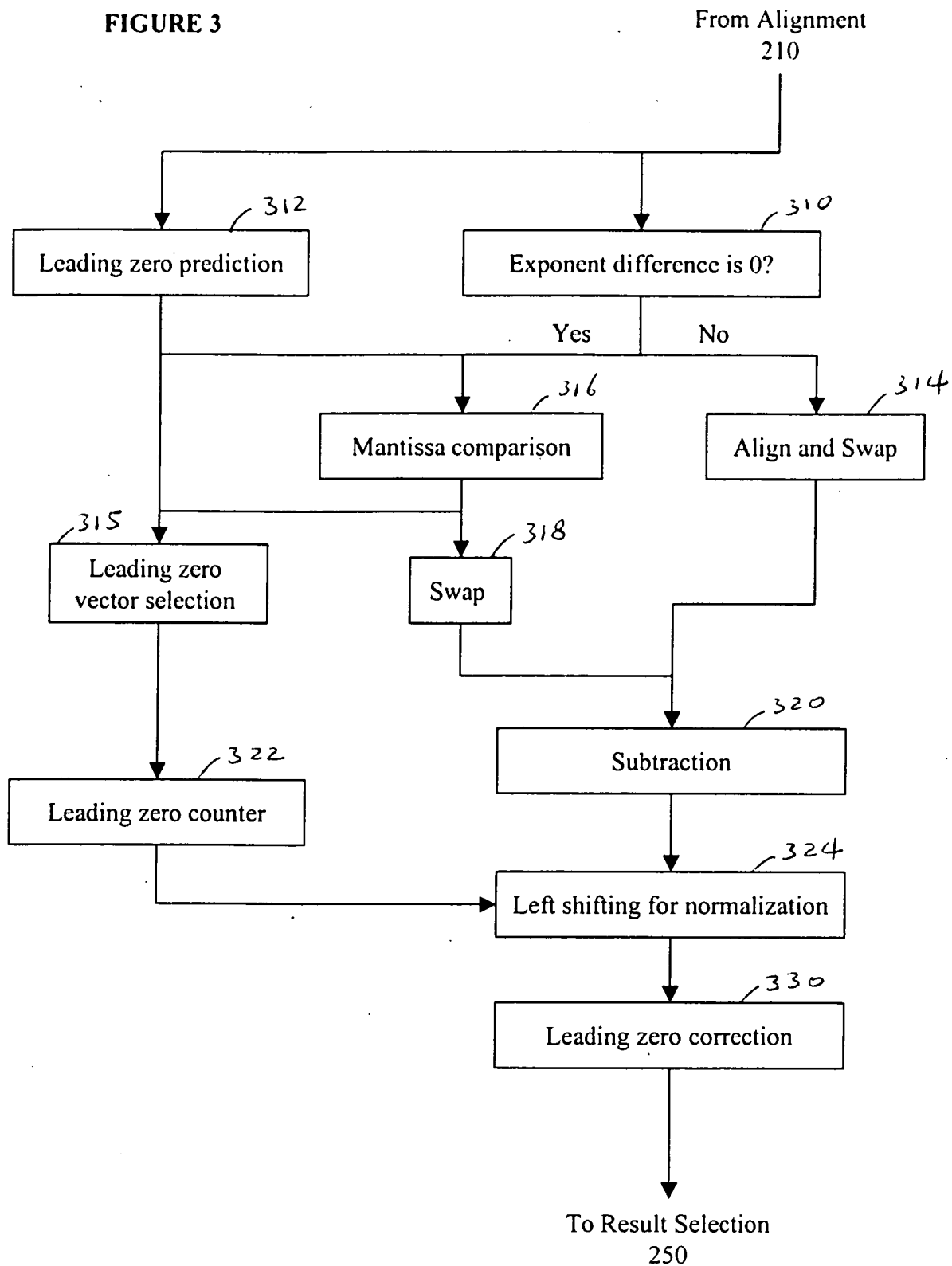


FIGURE 4

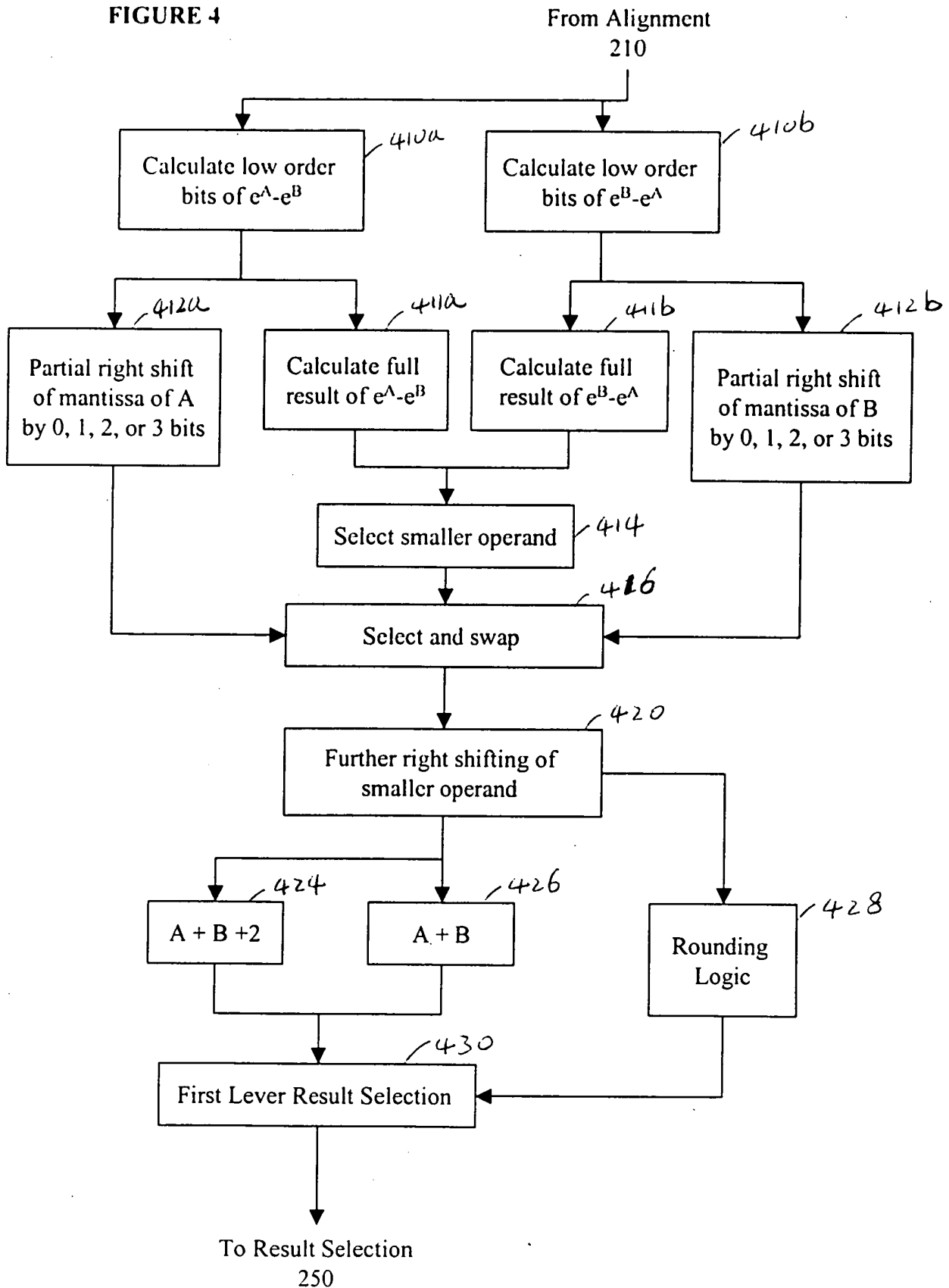


FIGURE 5

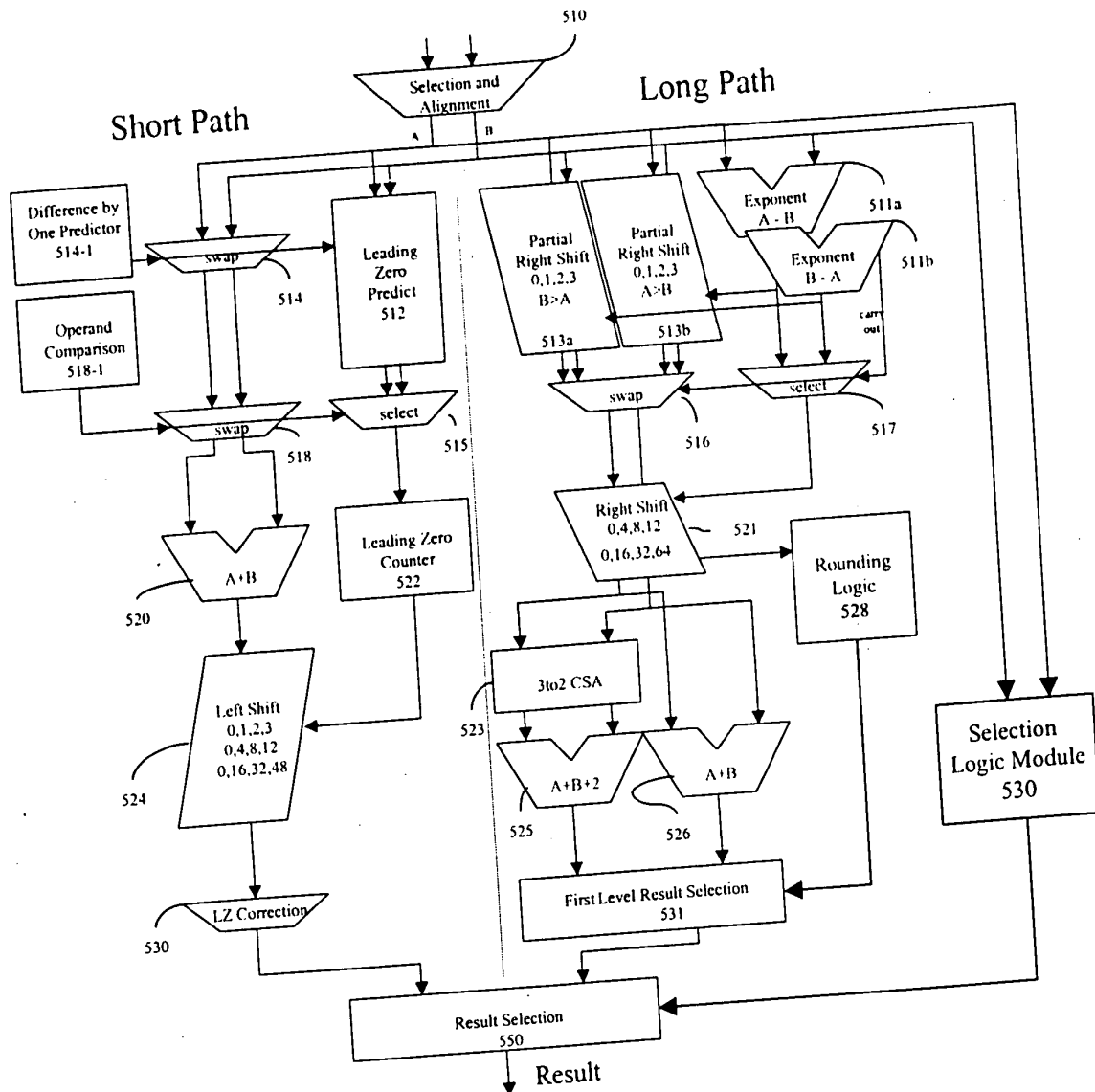


FIGURE 6A – Addition Result Selection in the long path

Overflow Bit	Roundup Bit	LSB	Result	
			(Double Precision)	(Single Precision)
1	1	-	$A+B+2[64:12]$	$A+B+2[64:41]$
1	0	-	$A+B[64:12]$	$A+B[64:11]$
0	1	1	$A+B+2[63:12],0$	$A+B+2[63:41],0$
0	1	0	$A+B[63:12], 1$	$A+B[63:41], 1$
0	0	-	$A+B[63:11]$	$A+B[63:40]$

FIGURE 6B – Subtraction Result Selection in the long path

Roundup bit	MSB	LSB	Guard	Double Precision result
0	0	-	-	$A+B[62:10]$
1	0	0	0	$A+B[62:12],01$
1	0	0	1	$A+B[62:12],10$
1	0	1	0	$A+B[62:12],11$
1	0	1	1	$A+B+2[62:12],00$
0	1	-	-	$A+B[63:11]$
1	1	0	0	$A+B[63:12],0$
1	1	0	1	$A+B[63:12],1$
1	1	1	0	$A+B[63:12],1$
1	1	1	1	$A+B+2[63:12],0$